

FLOW CYTOMETRY

The flow cytometer is an instrument capable of rapid quantitative multiparametric analysis of heterogeneous cell populations on a cell-by-cell basis.

Immunophenotyping Panels of Leukemias and Lymphomas:

The Flow Cytometer allows us to immunophenotype and monitor therapy of patients with leukemia and lymphoma.

Specimen requirements are as follows:

1. Peripheral blood should be submitted in AOD, heparin or EDTA and held at room temperature. The specimen cannot be clotted.
2. Bone marrow aspiration material should be submitted in ACD or heparin and held at room temperature. Again, clotting should be avoided.
3. Tissue or fine needle aspiration material should be held in RPMI and refrigerated (2-8 degrees Celsius).

DIAGNOSTIC CYTOGENETICS

Cytogenetics is used for determining the karyotype of vital, unfixed cellular material, usually bone marrow, viable fetal tissue or rare tumors. This can be helpful in further classifying tumors, myelodysplastic syndromes, leukemias or determining fetal cytogenetic abnormalities.

Specimen requirements are as follows:

PERIPHERAL BLOOD

Peripheral blood: 10-15 ml of blood in a preservative free sodium-heparin (green top) tube. Invert tube to mix. Prometaphase analysis will be performed on all specimens unless otherwise specified.

Newborn & PUBS: Minimum of 1 ml peripheral blood in a preservative free sodium-heparin (green top) tube. Invert tube to mix well.

SOLID TISSUE

All solid tissue sampled should be collected aseptically and transported in tissue culture media or Hank's balanced salt solution. Do NOT put in water, fixative, formalin or saline. Please keep sample at room temperature.

Products of Conception/Fetal Tissue: Large chorionic villi sample (approximately 3 cm) and a fetal tissue sample such as skin, lung or pericardium. Please send multiple tissue types if possible. Label tube with tissue type or origin.

Skin Biopsy/Solid tissue: 1-3 mm or more tissue. Label tube with tissue type or origin.

NEOPLASIA

Bone Marrow: Aspirate 1-2 ml bone marrow into a sterile syringe containing 0.1 ml preservative free sodium heparin, invert syringe to mix and transfer to a 3 ml preservative free sodium-heparin (green top) Vacutainer tube.

Leukemic Peripheral Blood: Patient should have a WBC of 15,000 or higher with approximately 10% circulating immature myeloid or lymphoid blast cells. Collect 5 ml of peripheral blood in a preservative free sodium-heparin (green top) Vacutainer tube.

Solid Tumor Tissue: >5 mm representative tumor tissue collected under aseptic conditions and transported in sterile tissue culture media.

Lymph Node Biopsy: >5 mm tumor biopsy collected under aseptic conditions and transported in sterile tissue culture media.

MOLECULAR ANALYSIS/DNA TESTING

Peripheral Blood: 5-10 ml blood in EDTA (lavender top) tube for molecular testing and 5-10 ml of blood in preservative free sodium-heparin (green top) tube for cytogenetic studies. (Molecular studies will be forwarded to an outside laboratory).

Prenatal: 15-20 ml of amniotic fluid in 2 sterile tubes. Cytogenetic analysis will be performed and amniocytes will be cultured to send to an outside laboratory for molecular studies.

FLUORESCENCE IN SITU HYBRIDIZATION (FISH)

FISH studies are indicated as an adjunct to classic Cytogenetics. Specimen collection is described previously for the tissue to be studied. These studies are performed in house at PSIP.